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STATE AND SUBSTATE ESTIMATES OF SERIOUS MENTAL ILLNESS FROM THE 2012–2014 NATIONAL SURVEYS ON DRUG USE AND HEALTH
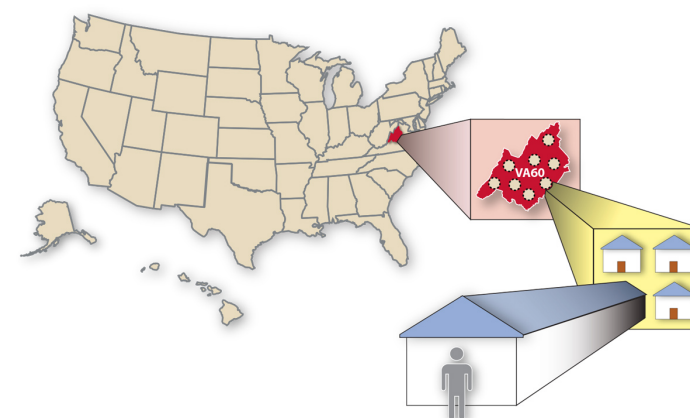
AUTHORS

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INTRODUCTION

Serious mental illness (SMI) among adults affects many American communities.[1] In 2014, over nine million adults aged 18 or older had SMI in the past year.[2] SMI is costly to society because it is often associated with negative outcomes, such as involvement with the justice system,[3,4] occurrence of chronic health conditions,[5] and poorer health outcomes.[4] SMI is costly and not all who need mental health services receive them.[1] In 2014, only 68.50 percent of adults with SMI received mental health services in the past year.[2] Information on the prevalence of mental illness is needed to help guide and inform effective treatment and prevention programs. The Substance Abuse and Mental Health Services Administration (SAMHSA) provides block grant funding to states in support of programs and services for adults with mental illness with the goal to improve their lives and their capacity to work in their community.[6] Policymakers may use state- and local-level information to help inform their assessments of mental health needs in their communities.

This issue of *The CBHSQ Report* presents estimates of SMI for adults aged 18 or older based on the combined 2012 to 2014 National Survey on Drug Use and Health (NSDUH) data.[7] NSDUH is an annual survey of the U.S. civilian, noninstitutionalized population aged 12 years or older. One of NSDUH's strengths is the stability of its design, which allows for multiple years of data to be combined to examine mental health information that can be reported at the national, state, and substate (e.g., local) levels and for changes to be measured across time.

In NSDUH, SMI is defined as adults aged 18 or older who currently or at any time in the past year have had a diagnosable mental, behavioral, or emotional disorder (excluding developmental and substance use disorders) of sufficient duration to meet diagnostic criteria specified in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* and has resulted in serious functional impairment, which substantially interferes with or limits one or more major life activities.[8] NSDUH is not designed to estimate the prevalence of specific mental disorders in adults. However, the estimation of SMI covers any mental

In Brief

- The Substance Abuse and Mental Health Services Administration's state- and substate-level estimates based on combined 2012–2014 National Survey on Drug Use and Health data can advance the understanding of serious mental illness (SMI) in U.S. communities.
- Nationally, 9.8 million adults aged 18 or older experienced SMI in the past year, corresponding to 4.13 percent of the adult population.
- Among states, SMI estimates ranged from 3.31 percent in Maryland to 5.53 percent in West Virginia.
- Among the substate regions, SMI estimates ranged from 2.82 percent in Maryland's Region to 6.18 percent in West Virginia's Region VI.
- Of the 16 substate regions with the lowest estimates of SMI, 7 were in the South (4 in Maryland, 2 in the District of Columbia, and 1 in Virginia), 4 were in the West (3 California and 1 in Hawaii), 3 were in the Northeast (1 in New Jersey, 1 in New York, and 1 in Connecticut), and 2 were in the Midwest (Illinois).
- Of the 15 substate regions with the highest estimates of SMI, 7 were in the South (4 in West Virginia, 1 in Arkansas, 1 in North Carolina, and 1 in Kentucky), 4 were in the Northeast (2 in Vermont and 2 in Maine), 3 were in the Midwest (1 in Missouri, 1 in Michigan, and 1 in Ohio), and 1 was in the West (Utah).
- Between 2010–2012 and 2012–2014, only 1 state, North Carolina, experienced a statistically significant increase in estimates of past year SMI, while the remaining 49 states and the District of Columbia experienced no change.

disorder that results in serious functional impairment, such as major depression, psychosis, and bipolar disorders. National epidemiological studies have generally not included formal assessments of severe but rare disorders, including schizophrenia and pervasive developmental disorders (e.g., autistic spectrum disorder), because of the challenges in accurately assessing symptoms outside of the clinic setting. NSDUH's estimate of past year SMI among adults is based on a predictive model applied to NSDUH data and is not a direct measure of diagnostic status. For details on the methodology, see Section B.4.4 in Appendix B of the 2014 NSDUH methodological summary and definitions.[9]

This report presents NSDUH estimates of SMI across four levels: (1) the nation, (2) census regions (i.e., South, Midwest, West, and Northeast), (3) states (i.e., 50 states and the District of Columbia), and (4) substate regions (i.e., 362 substate regions). This report also compares estimates of SMI in 2010–2012 and 2012–2014. All changes across time discussed in this report are statistically significant at the .05 level. Estimates are annual averages based on combined 2012–2014 NSDUH data from about 142,000 respondents aged 18 or older. Estimates were derived from a complex statistical model (i.e., small area estimation) in which substate data from NSDUH were combined with other local area data to enhance statistical power and analytic capability.[10]
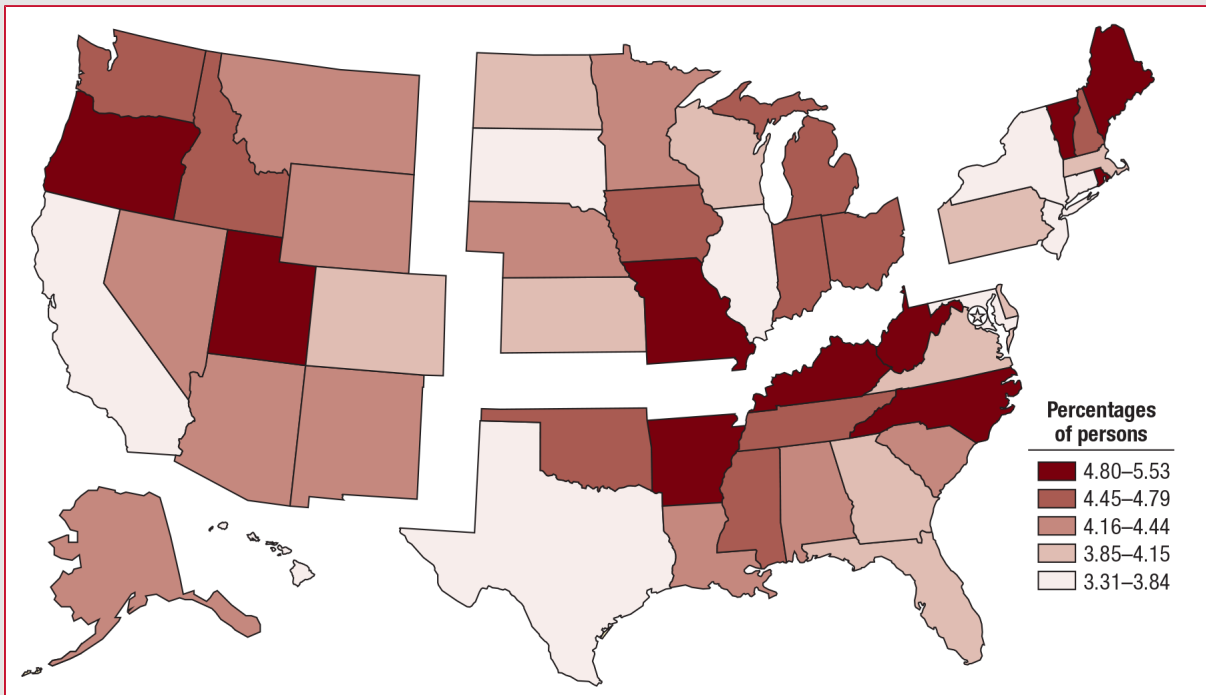
NATIONAL, REGIONAL, AND STATE ESTIMATES

In this section, estimates of past year SMI among adults are presented in Figure 1 and Table 1 for the nation, census regions, and the 50 states and the District of Columbia. In Table 1, state estimates are shown to two decimal places and are ordered from highest to lowest percentage of the population with past year SMI. To produce the map in Figure 1, the states that were presented in Table 1 from highest to lowest were then divided into quintiles (fifths).[11] A state having a highest or lowest estimate does not imply that the estimate is significantly higher or lower than the next highest or lowest estimate. When comparing two estimates, overlapping 95 percent confidence intervals do not imply that the estimates are statistically equivalent at the 5 percent level of significance.[12]

National Estimate of Serious Mental Illness

Based on combined 2012–2014 NSDUH data, an annual average of 9.3 million U.S. adults aged 18 or older experienced SMI in the past year. This corresponds to a national estimate of 4.13 percent of adults having past year SMI. Among states, estimates of past year SMI ranged from 3.31 percent in Maryland to 5.53 percent in West Virginia (Figure 1; Table 1).

Figure 1. Serious mental illness (SMI) in the past year among people aged 18 or older by state: percentages, annual averaged based on combined 2012 to 2014 NSDUHs

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health (NSDUH), 2012 to 2014.

Table 1. Serious mental illness (SMI) in the past year among people aged 18 or older by quintile group: percentages, annual averaged based on combined 2012 to 2014 NSDUHs

State	Census region	Percentage of adults	Quintile group
West Virginia	South	5.53%	5
Vermont	Northeast	5.28%	5
Arkansas	South	5.20%	5
Utah	West	5.17%	5
Rhode Island	Northeast	4.98%	5
Maine	Northeast	4.96%	5
Kentucky	South	4.96%	5
Missouri	Midwest	4.87%	5
North Carolina	South	4.85%	5
Oregon	West	4.83%	5
Idaho	West	4.79%	4
Ohio	Midwest	4.74%	4
Washington	West	4.72%	4
Mississippi	South	4.72%	4
Indiana	Midwest	4.71%	4
New Hampshire	Northeast	4.65%	4
Oklahoma	South	4.59%	4
Michigan	Midwest	4.53%	4
Tennessee	South	4.52%	4
Iowa	Midwest	4.45%	4
Nebraska	Midwest	4.44%	3
Montana	West	4.39%	3
South Carolina	South	4.35%	3
Nevada	West	4.33%	3
Minnesota	Midwest	4.32%	3
Wyoming	West	4.30%	3
Louisiana	South	4.27%	3
Arizona	West	4.25%	3
New Mexico	West	4.23%	3
Alabama	South	4.21%	3
Alaska	West	4.18%	3
Wisconsin	Midwest	4.15%	2
Kansas	Midwest	4.12%	2
North Dakota	Midwest	4.04%	2
Massachusetts	Northeast	4.03%	2
Pennsylvania	Northeast	4.00%	2
Delaware	South	3.99%	2
Georgia	South	3.99%	2
Virginia	South	3.98%	2
Colorado	West	3.90%	2
Florida	South	3.86%	2
Texas	South	3.84%	1
California	West	3.79%	1
District of Columbia	South	3.78%	1
New York	Northeast	3.74%	1
South Dakota	Midwest	3.70%	1
New Jersey	Northeast	3.46%	1
Connecticut	Northeast	3.43%	1
Hawaii	West	3.43%	1
Illinois	Midwest	3.42%	1
Maryland	South	3.31%	1

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health (NSDUH), 2012 to 2014.

National Estimate of Serious Mental Illness

Based on combined 2012–2014 NSDUH data, an annual average of 9.3 million U.S. adults aged 18 or older experienced SMI in the past year. This corresponds to a national estimate of 4.13 percent of adults having past year SMI. Among states, estimates of past year SMI ranged from 3.31 percent in Maryland to 5.53 percent in West Virginia (Figure 1; Table 1).

Regional Estimates of Serious Mental Illness

Across the census regions, estimates of past year SMI were 4.32 percent in the Midwest, 4.16 percent in the South, 4.09 percent in the West, and 3.86 percent in the Northeast (Table 1).[13]

Some variability in state-level estimates of SMI was observed within the census regions. In the Midwest, estimates of past year SMI ranged from 4.87 percent in Missouri to 3.42 percent in Illinois. In the South, estimates of past year SMI ranged from 5.53 percent in West Virginia to 3.31 percent in Maryland. In the West, estimates of past year SMI ranged from 5.17 percent in Utah to 3.43 percent in Hawaii. In the Northeast, estimates of past year SMI ranged from 5.28 percent in Vermont to 3.43 percent in Connecticut.

State Estimates of Serious Mental Illness

As described previously, the 50 states and the District of Columbia were divided into quintiles based on the percentage of the population with past year SMI. The 10 states in the lowest quintile of estimates of past year SMI included Maryland (3.31 percent), Illinois (3.42 percent), Hawaii (3.43 percent), Connecticut (3.43 percent), New Jersey (3.46 percent), South Dakota (3.70 percent), New York (3.74 percent), the District of Columbia (3.78 percent), California (3.79 percent), and Texas (3.84 percent).

The 10 states in the highest quintile of estimates of past year SMI included West Virginia (5.53 percent), Vermont (5.28 percent), Arkansas (5.20 percent), Utah (5.17 percent), Rhode Island (4.98 percent), Maine (4.96 percent), Kentucky (4.96 percent), Missouri (4.87 percent), North Carolina (4.85 percent), and Oregon (4.83 percent).

Changes over Time

This report also compares the combined 2012–2014 state estimates of past year SMI with 2010–2012 estimates of SMI to examine changes over time. The 2010–2012 data are based on information obtained from 138,300 adults aged 18 or older. The inclusion of a common year (i.e., 2012) in these comparisons increases the precision of the estimates and the ability to detect statistically significant differences between the two periods. Statistically significant differences between 2010–2012 and 2012–2014 indicate average annual change between 2010–2011 and 2013–2014. It is not possible to examine changes over time at the substate level because of changes to substate boundaries by the states between 2010–2012 and 2012–2014.

When the 2010–2012 state estimates of past year SMI for adults aged 18 or older were compared with the 2012–2014 state estimates, 1 state (North Carolina) experienced a statistically significant increase in the percentage of adults with past year SMI. The remaining 49 states and the District of Columbia experienced no change in the percentage of adults with SMI in the past year (Table 2). No states experienced declines.

Table 2. Serious mental illness (SMI) in the past year among people aged 18 or older by state: percentages, annual averages based on combined 2010 to 2012 and combined 2012 to 2014 NSDUHs

State	Annual averages: 2010–2012		Annual averages: 2012–2014	
	Percent	95% Confidence interval	Percent	95% Confidence interval
National	**3.99**	**(3.83–4.16)**	**4.13**	**(3.97–4.29)**
Northeast	3.69	(3.40–4.00)	3.86	(3.55–4.20)
Midwest	4.18	(3.92–4.46)	4.32	(4.03–4.62)
South	3.92	(3.66–4.20)	4.16	(3.90–4.45)
West	4.16	(3.82–4.52)	4.09	(3.76–4.45)
Alabama	4.99	(4.04–6.16)	4.21	(3.41–5.18)
Alaska	4.32	(3.48–5.35)	4.18	(3.44–5.09)
Arizona	5.16	(4.13–6.44)	4.25	(3.46–5.21)
Arkansas	5.20	(4.20–6.41)	5.20	(4.28–6.30)
California	3.53	(3.06–4.07)	3.79	(3.31–4.32)
Colorado	4.36	(3.48–5.45)	3.90	(3.14–4.83)
Connecticut	3.46	(2.75–4.35)	3.43	(2.81–4.18)
Delaware	3.81	(3.05–4.77)	3.99	(3.25–4.90)
District of Columbia	3.45	(2.77–4.29)	3.78	(3.16–4.52)
Florida	3.61	(3.12–4.17)	3.86	(3.37–4.40)
Georgia	3.43	(2.72–4.31)	3.99	(3.27–4.86)
Hawaii	3.39	(2.64–4.36)	3.43	(2.74–4.29)
Idaho	5.05	(4.08–6.25)	4.79	(4.01–5.72)
Illinois	3.29	(2.82–3.85)	3.42	(2.95–3.97)
Indiana	4.62	(3.78–5.65)	4.71	(3.91–5.67)
Iowa	4.38	(3.53–5.43)	4.45	(3.71–5.34)
Kansas	4.17	(3.34–5.20)	4.12	(3.39–5.00)
Kentucky	4.57	(3.69–5.65)	4.96	(4.09–6.00)
Louisiana	3.72	(2.99–4.62)	4.27	(3.53–5.15)
Maine	4.35	(3.52–5.37)	4.96	(4.08–6.03)
Maryland	3.19	(2.53–4.02)	3.31	(2.70–4.06)
Massachusetts	3.77	(3.05–4.65)	4.03	(3.33–4.86)
Michigan	4.45	(3.92–5.05)	4.53	(3.98–5.14)
Minnesota	3.90	(3.16–4.79)	4.32	(3.57–5.23)
Mississippi	4.56	(3.68–5.62)	4.72	(3.86–5.75)
Missouri	4.60	(3.72–5.67)	4.87	(4.04–5.86)
Montana	4.74	(3.87–5.80)	4.39	(3.60–5.34)
Nebraska	4.44	(3.59–5.48)	4.44	(3.66–5.38)
Nevada	4.21	(3.34–5.31)	4.33	(3.52–5.32)
New Hampshire	4.39	(3.52–5.47)	4.65	(3.83–5.64)
New Jersey	3.09	(2.42–3.95)	3.46	(2.82–4.25)
New Mexico	4.38	(3.50–5.46)	4.23	(3.45–5.17)
New York	3.56	(3.07–4.12)	3.74	(3.24–4.31)
North Carolina*	3.74	(2.96–4.71)	4.85	(4.00–5.87)
North Dakota	3.87	(3.10–4.81)	4.04	(3.34–4.88)
Ohio	4.71	(4.15–5.34)	4.74	(4.18–5.36)
Oklahoma	5.25	(4.27–6.46)	4.59	(3.81–5.51)
Oregon	4.97	(4.05–6.09)	4.83	(4.02–5.81)
Pennsylvania	4.06	(3.54–4.65)	4.00	(3.49–4.57)
Rhode Island	4.28	(3.38–5.42)	4.98	(4.04–6.12)
South Carolina	4.26	(3.42–5.29)	4.35	(3.58–5.27)
South Dakota	3.82	(3.02–4.82)	3.70	(2.96–4.63)
Tennessee	4.23	(3.42–5.23)	4.52	(3.74–5.46)
Texas	3.57	(3.09–4.13)	3.84	(3.36–4.40)
Utah	5.16	(4.23–6.28)	5.17	(4.33–6.15)
Vermont	4.69	(3.78–5.82)	5.28	(4.30–6.47)
Virginia	4.17	(3.35–5.17)	3.98	(3.30–4.80)
Washington	5.39	(4.33–6.68)	4.72	(3.92–5.67)
West Virginia	5.38	(4.39–6.58)	5.53	(4.59–6.64)
Wisconsin	3.89	(3.10–4.86)	4.15	(3.39–5.07)
Wyoming	4.07	(3.34–4.96)	4.30	(3.57–5.17)

*Difference between estimates for 2010-2012 and 2012-2014 is significant at .05 level.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health (NSDUH), 2010 to 2014.

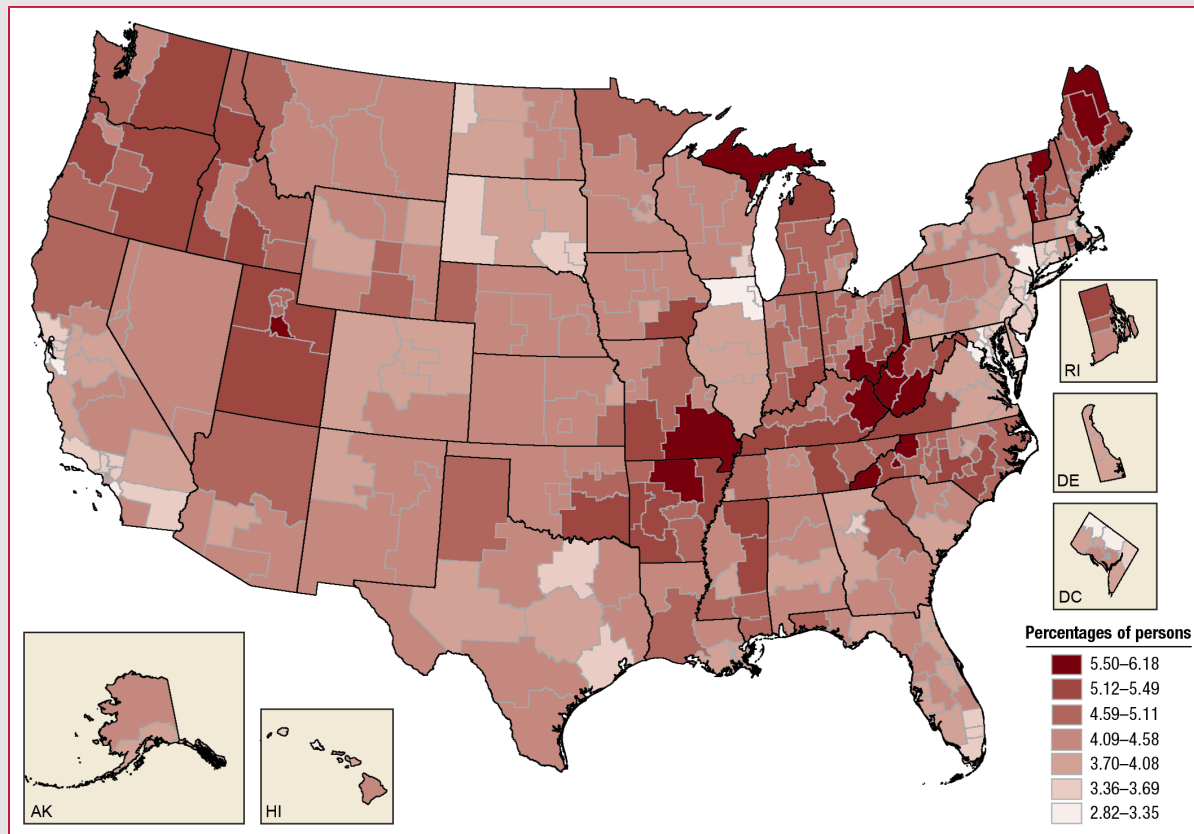# SUBSTATE REGION ESTIMATES OF SERIOUS MENTAL ILLNESS

SAMHSA works with state substance abuse/mental health agency representatives to define substate areas that meet state needs and reporting requirements while ensuring that the NSDUH sample sizes are large enough to provide estimates with adequate precision.[14] Combined 2012–2014 NSDUH data can be used to estimate past year SMI in 362 substate regions. The 2012–2014 estimates in this report are based on substate boundaries that reflect current state needs and reporting requirements and may not be comparable with estimates from substate regions from prior years. For substate region definitions, see the "2012–2014 National Survey on Drug Use and Health Substate Region Definitions" at http://samhsa.gov/data/. In most states, the substate regions are defined in terms of single counties or groups of counties; in some states, the regions are defined entirely in terms of census tracts (in Connecticut, the District of Columbia, and Massachusetts), parishes (in Louisiana), boroughs/census areas (in Alaska), a combination of counties and census tracts (in California and Delaware), and a combination of counties and independent cities (in Maryland, Missouri, Nevada, and Virginia).

Substate region estimates for past year SMI among people aged 18 or older are displayed on a U.S. map (Figure 2). In Table S1, substate region estimates are shown to two decimal places and are listed alphabetically by state. To produce the substate map in Figure 2, the substate estimates of past year nonmedical use of prescription pain relievers were ordered from highest to lowest percentage and were then divided into three approximately equal groups based on their percentage. There are 121 substate regions in the lowest third (i.e., with the lowest percentages) and there are 121 substate regions in the highest third (i.e., with the highest percentages). There are 120 substates regions in the middle third. The highest and lowest thirds were subdivided into thirds to further distinguish among the substate regions. Overall, the seven groups in each map were constructed to represent a somewhat symmetrical distribution.[15] In some cases, a category could have more or fewer substate regions because two (or more) substate regions have the same estimate (to two decimal places). When such ties occurred at the "boundary" between two groups, all substate regions with the same estimate were assigned to the lower group. Individual state maps at http://samhsa.gov/data/ provide more granularity in areas too small to display clearly on the U.S. maps. Table 2 provides estimates associated with each map. Ninety-five percent confidence intervals are included as a measure of precision for each estimate.[16]

Among the substate regions, estimates of past year SMI ranged from 6.18 percent in West Virginia's Region VI to 2.82 percent in Maryland's Prince George Region (Figure 2). Of the 16 substate regions with the lowest estimates of past year SMI, 7 were in the South (4 in Maryland, 2 in the District of Columbia, and 1 in Virginia), 4 were in the West (3 California and 1 in Hawaii), 3 were in the Northeast (1 in New Jersey, 1 in New York, and 1 in Connecticut), and 2 were in the Midwest (2 in Illinois).

Of the 15 substate regions with the highest estimates of past year SMI, 7 were in the South (4 in West Virginia, 1 in Arkansas, 1 in North Carolina, and 1 in Kentucky), 4 were in the Northeast (2 in Vermont and 2 in Maine), 3 were in the Midwest (1 in Missouri, 1 in Michigan, and 1 in Ohio), and 1 was in the West (Utah).

Figure 2. Serious mental illness in the past year among adults aged 18 or older, by substate region: percentage, annual averages based on combined 2012 to 2014 NSDUHs

Percentages of persons
- 5.50–6.18
- 5.12–5.49
- 4.59–5.11
- 4.09–4.58
- 3.70–4.08
- 3.36–3.69
- 2.82–3.35

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health (NSDUH), 2012 to 2014.
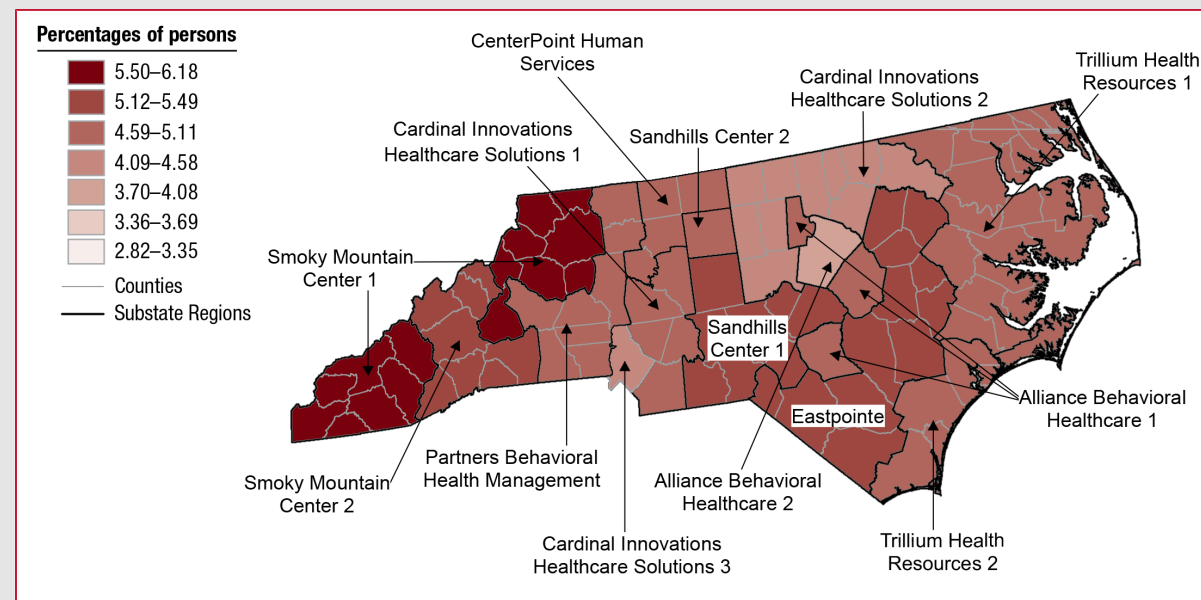
WITHIN-STATE VARIATION IN SERIOUS MENTAL ILLNESS

The previous sections examined 2012–2014 NSDUH state and substate past year SMI estimates individually. Some substate areas are too small to display clearly on the U.S. national maps (Figure 2); therefore, individual state maps are particularly useful for seeing these small substate areas. SAMHSA produces individual NSDUH state maps that display the substate estimates of past year SMI and other behavioral health measures. In this section, one of the individual state maps is presented to illustrate the variability within states. For more state-specific NSDUH maps, see http://www.samhsa.gov/data/sites/default/files/NSDUHsubstateStateTabs2014/NSDUHsubstateSpecificStatesTOC2014.htm.

As previously noted, the assignments of the substate areas within states were created by dividing 362 substate regions, nationally, into 7 groups based on their past year SMI percentages. Figure 2 shows that states that are in the highest and lowest quintiles tend to have more uniform substate estimates. That is, states with the highest percentages of past year SMI tend to have substate areas with high percentages of past year SMI.

Across the states, the most variability in substate estimates typically occurred within states in the middle quintile. Stated another way, the states in the middle third in Figure 1 had the most variation at the substate level in Figure 2. Of the 11 states in the middle quintile, 5 states had substate-level estimates of past year SMI that were in the highest, middle, and lowest third, which may indicate some variability. An example of variability within a state can be seen in North Carolina (Figure 3). In North Carolina, past year SMI for adults aged 18 or older ranged from 5.75 percent in Smoky Mountain Center 1 to 3.88 percent in Alliance Behavioral Healthcare 2. In North Carolina, 11 substate regions were in the highest third (Smoky Mountain Center 1 and 2, Eastpointe, Sandhills Center 1 and 2, Trillium Health Resources 1 and 2, Cardinal Innovations Healthcare Solutions 1, Partners Behavioral Health Management, CenterPoint Human Services, and Alliance Behavioral Healthcare 1), indicating higher estimates of SMI. One substate region was in the lowest third (Alliance Behavioral Healthcare 2), indicating lower estimates of SMI. The remaining two substate regions (Cardinal Innovations Healthcare Solutions 2 and 3) fell in the middle third.

Figure 3. Serious mental illness in the past year among adults aged 18 or older in North Carolina, by substate region: percentage, annual averages based on combined 2012 to 2014 NSDUHs

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health (NSDUH), 2012 to 2014.

DISCUSSION

Although the prevalence of adults with mental illness among states ranges widely, it is important to note that there are many people with SMI in every state, which is expected because mental illness is common.[17] Substate regions with highest and lowest estimates of past year SMI among adults aged 18 or older are located in all U.S. regions. The presence of SMI in every state reinforces that mental illness is a major public health concern in the United States. Factors that potentially contribute to the variation may need further study; however, policymakers can use state- and substate-level information to help inform their assessments of mental health needs in their communities. Maps and tables presented in this report can help state policymakers quickly see where efforts are needed to address mental health in their state. For example, substate regions within states can vary significantly in the prevalence of SMI (e.g., North Carolina). As data from several years of NSDUHs are accumulated, in-depth analysis of these state and substate data will continue to provide insight into the patterns of mental illness, such as variations over time and by age and gender within each state. SAMHSA provides information about where to find mental health treatment at https://findtreatment.samhsa.gov/.

Other NSDUH Substate Measures

The combined 2012–2014 NSDUH estimates for past year SMI for adults aged 18 or older are available, along with 25 additional behavioral health measures for 384 substate areas, 50 states and the District of Columbia, 4 census regions, and the United States. Information on the methodology that generated these estimates is available online at http://samhsa.gov/data/. This report discusses one of the measures for the 362 substate areas displayed on the maps. The 25 additional measures include substance use and mental health issues, including use of illicit drugs (e.g., marijuana use, cocaine use, nonmedical use of prescription pain relievers), alcohol, and tobacco; substance use disorders; needing but not receiving treatment for a substance use problem; SMI; depression; and suicidal thoughts. Also provided are national maps for all measures and detailed tables including percentages for each substate region, state, census region, and the nation for people aged 12 or older; tables by age group; and state-specific tables and maps. The state maps are particularly useful in areas too small to display clearly on the U.S. maps.

ENDNOTES

1. Center for Behavioral Health Statistics and Quality. (2013). *Behavioral Health, United States, 2012* (HHS Publication No. SMA 13-4797). Rockville, MD: Substance Abuse and Mental Health Services Administration. Retrieved from http://samhsa.gov/data/

2. Center for Behavioral Health Statistics and Quality. (2015). *Behavioral health trends in the United States: Results from the 2014 National Survey on Drug Use and Health* (HHS Publication No. SMA 15-4927, NSDUH Series H-50). Retrieved from http://samhsa.gov/data/

3. Glasheen, C., Hedden, S. L., Kroutil, L. A., Pemberton, M. R., & Goldstrom, I. (2012, November). *Past year arrest among adults in the United States: Characteristics of and association with mental illness and substance use*. CBHSQ Data Review. Retrieved from http://samhsa.gov/data/

4. Feucht, T. E., & Gfroerer, J. (2011, Summer). *Mental and substance use disorders among adult men on probation or parole: Some success against a persistent challenge* (NCJ 235637). SAMHSA Data Review. Retrieved from http://samhsa.gov/data/

5. Clarke, D. M., & Currie, K. (2009). Depression, anxiety and their relationship with chronic diseases: A review of the epidemiology, risk and treatment evidence. *Medical Journal of Australia, 190*(7 Suppl.), S54–S60.

6. Public Law No. 102-321, the Alcohol, Drug Abuse, and Mental Health Administration Reorganization Act of 1992, established a block grant for states within the United States to fund community mental health services for adults with SMI. The law required states to include prevalence estimates in their annual applications for block grant funds. This legislation also required SAMHSA to develop an operational definition of SMI. Information about SAMHSA's block grant programs can be found at http://www.samhsa.gov/grants/blockgrant/. It should be noted that SAMHSA has recently updated the definition of SMI for use in mental health block grants to include mental disorders as specified in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders*.

7. A discussion of the methodology used to generate SMI estimates can be found in Appendix B of the 2014 NSDUH mental health findings report. For information on mental illness and mental health service utilization, see Chapter 2 in the 2012 NSDUH mental health findings report.

8. American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (DSM-IV) (4th ed.). Washington, DC: Author.

9. SAMHSA has been publishing estimates of the prevalence of past year SMI and any mental illness among adults aged 18 or older since the release of the 2008 NSDUH national findings report. Estimates were based on a model developed in 2008. In 2013, SAMHSA developed a more accurate model for the 2012 data and subsequently revised the SMI and any mental illness estimates for 2008, 2009, 2010, and 2011 based on the 2012 model. The combined 2011–2012 and 2012-2014 state and substate estimates in this report are based on the 2012 model. For additional information, see the NSDUH short report titled *Revised Estimates of Mental Illness from the National Survey on Drug Use and Health* at http://www.samhsa.gov/data/2k13/NSDUH148/sr148-mental-illness-estimates.pdf.

10. Estimates presented in this report are derived from a hierarchical Bayes model-based small area estimation (SAE) procedure in which NSDUH data at the substate level are combined with local area county and census block group/tract-level data from the area to provide more precise estimates of substance use and mental health outcomes. The precision of the SAE estimates can be improved significantly by combining data across 3 years (i.e., 2012 to 2014). With 3 years of combined NSDUH data, the sample sizes in the 362 substate regions ranged from 100 people to approximately 3,500 people.

11. In some cases, a "quintile" could have more or fewer states than desired because two (or more) states have the same estimate (to two decimal places). When such ties occurred at the "boundary" between two quintiles, all states with the same estimate were assigned to the lower quintile.

12. In this report, state estimates are discussed in terms of their observed rankings because they provide useful context. However, a state having a highest or lowest rate does not imply that the state's rate is significantly higher or lower than the rate of the next highest or lowest state. Similarly, the quintiles were not selected to represent statistical differences across quintiles or to correspond to proximity to a target public health threshold for a particular measure. For example, the division of states into quintiles does not indicate that states in the same quintile are statistically similar to each other. While a nearly equal number of states are contained in each quintile, the size of the intervals (i.e., the difference between the upper and lower limits of each quintile) that define the map boundaries is not necessarily uniform across each quintile." When comparing two state prevalence rates, the method of overlapping confidence intervals is more conservative (i.e., it rejects the null hypothesis of no difference less often) than the standard method based on Z statistics when the null hypothesis is true. Even if confidence intervals for two states overlap, the two estimates may be declared significantly different by the test based on Z statistics. Hence, the method of overlapping confidence intervals is not recommended to test the difference of two state estimates. A detailed description of the method of overlapping confidence intervals and its comparison with the standard methods for testing of a hypothesis is given in the following articles: (a) Schenker, N., & Gentleman, J. F. (2001). On judging the significance of differences by examining the overlap between confidence intervals. *American Statistician, 55*(3), 182–186. (b) Payton, M. E., Greenstone, M. H., & Schenker, N. (2003). Overlapping confidence intervals or standard error intervals: What do they mean in terms of statistical significance? *Journal of Insect Science, 3*, 34. For details on a more accurate test to

compare state prevalence estimates, please see Section B.12 in Appendix B of *2011-2012 National Survey on Drug Use and Health: Guide to state tables and summary of small area estimation methodology*, located at http://www.samhsa.gov/data/NSDUH/2k12State/NSDUHsae2012/Index.aspx.

13. The West has 13 states: AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, and WY. The South has 16 states plus the District of Columbia: AL, AR, DE, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, and WV. The Northeast has 9 states: CT, MA, ME, NH, NJ, NY, PA, RI, and VT. The Midwest has 12 states: IA, IL, IN, KS, MI, MN, MO, ND, NE, OH, SD, and WI.

14. Substance use and mental health officials from each of the 50 states and the District of Columbia typically define these substate areas to correspond to areas reported in their applications for the Substance Abuse Prevention and Treatment Block Grant (SABG) administered by SAMHSA. The SABG program provides financial and technical assistance to the 50 states, the District of Columbia, and other jurisdictions to support substance abuse prevention and treatment programs and to promote public health. States use NSDUH substate estimates for a variety of purposes, including strategic planning and program development, production of epidemiological profiles for briefing state legislatures and informing the public, allocation of funds to areas based on the need for services, and other uses.

15. The seven categories were not selected to represent statistical differences across categories or to correspond to proximity to a target public health threshold for a particular measure. For example, the division of substate regions into seven categories does not indicate that substate regions in the same category are statistically similar to each other. Furthermore, the size of the intervals (i.e., the difference between the upper and lower limits of each category) that define the map boundaries is not necessarily uniform across each category. The substate areas are uniquely defined based on the needs of each state and may not be demographically or geographically comparable to substate areas in other states.

16. When comparing two substate region percentages, the method of overlapping confidence intervals is more conservative (i.e., it rejects the null hypothesis of no difference less often) than the standard method based on Z statistics when the null hypothesis is true. Even if confidence intervals for two substate regions overlap, the two estimates may be declared significantly different by the test based on Z statistics. Hence, the method of overlapping confidence intervals is not recommended to test the difference of two substate region estimates. As percentages are standardized, they do not inform a reader when two states or substates have the same percentage but different population sizes.

17. World Health Organization. (2001). *Strengthening mental health promotion (Fact sheet no. 220)*. Geneva, Switzerland: Author.

SUGGESTED CITATION

Lipari, R.N., Van Horn, S., Hughes, A. and Williams, M. *State and substate estimates of serious mental illness from the 2012–2014 National Surveys on Drug Use and Health*. The CBHSQ Report: July 20, 2017. Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Rockville, MD.

Table S1. Serious mental illness among people aged 18 or older, by region, state and substate region: percentages, annual averages based on combined 2012 to 2014 NSDUH

State	Substate region	Small area estimate	95% CI (lower)	95% CI (upper)	Substate area group
Total United States	**Total United States**	**4.13%**	**3.97%**	**4.29%**	
Northeast	Northeast	3.86%	3.55%	4.20%	
Midwest	Midwest	4.32%	4.03%	4.62%	
South	South	4.16%	3.90%	4.45%	
West	West	4.09%	3.76%	4.45%	
Alabama	**Alabama**	**4.21%**	**3.41%**	**5.18%**	
Alabama	Region 1	4.28%	3.16%	5.78%	4
Alabama	Region 2	4.26%	3.20%	5.66%	4
Alabama	Region 3	3.95%	2.93%	5.30%	3
Alabama	Region 4	4.24%	3.11%	5.76%	4
Alaska	**Alaska**	**4.18%**	**3.44%**	**5.09%**	
Alaska	Anchorage	4.35%	3.36%	5.62%	4
Alaska	Northern	4.14%	3.15%	5.41%	4
Alaska	South Central	4.02%	3.04%	5.29%	3
Alaska	Southeast	4.04%	2.97%	5.47%	3
Arizona	**Arizona**	**4.25%**	**3.46%**	**5.21%**	
Arizona	Maricopa	4.08%	3.20%	5.19%	3
Arizona	Pima	4.31%	3.20%	5.79%	4
Arizona	Rural North	4.70%	3.37%	6.51%	5
Arizona	Rural South	4.54%	3.35%	6.14%	4
Arkansas	**Arkansas**	**5.20%**	**4.28%**	**6.30%**	
Arkansas	Catchment Area 1	4.98%	3.73%	6.62%	5
Arkansas	Catchment Area 2	6.16%	4.52%	8.34%	7
Arkansas	Catchment Area 3	5.12%	3.82%	6.83%	6
Arkansas	Catchment Area 4	5.24%	3.86%	7.08%	6
Arkansas	Catchment Area 5	5.16%	3.81%	6.95%	6
Arkansas	Catchment Area 6	5.06%	3.65%	6.98%	5
Arkansas	Catchment Area 7	5.44%	3.92%	7.51%	6
Arkansas	Catchment Area 8	4.78%	3.54%	6.42%	5
California	**California**	**3.79%**	**3.31%**	**4.32%**	
California	Region 1R	4.65%	3.53%	6.09%	5
California	Region 2R	4.11%	3.15%	5.36%	4
California	Region 3R (Sacramento)	4.08%	3.14%	5.29%	3
California	Region 4R	3.52%	2.69%	4.58%	2
California	Region 5R (San Francisco)	3.90%	2.98%	5.10%	3
California	Region 6 (Santa Clara)	3.15%	2.38%	4.15%	1
California	Region 7R (Contra Costa)	3.54%	2.68%	4.68%	2
California	Region 8R (Alameda)	3.45%	2.66%	4.46%	2
California	Region 9R (San Mateo)	3.12%	2.36%	4.12%	1
California	Region 10	3.56%	2.73%	4.63%	2
California	LA SPA 1 and 5	3.63%	2.81%	4.68%	2
California	LA SPA 2	3.69%	2.85%	4.77%	2
California	LA SPA 3	3.55%	2.68%	4.69%	2
California	LA SPA 4	4.40%	3.34%	5.78%	4
California	LA SPA 6	4.02%	3.03%	5.31%	3
California	LA SPA 7	3.82%	2.88%	5.06%	3
California	LA SPA 8	3.75%	2.86%	4.90%	3
California	Region 12R	3.94%	3.01%	5.16%	3
California	Regions 13 and 19R	3.69%	2.85%	4.75%	2
California	Region 14 (Orange)	3.32%	2.59%	4.26%	1
California	Region 15R (Fresno)	4.27%	3.28%	5.54%	4
California	Region 16R (San Diego)	4.11%	3.22%	5.23%	4
California	Region 17R	4.26%	3.28%	5.51%	4
California	Region 18R (San Bernardino)	3.98%	3.07%	5.14%	3
California	Region 20R	4.08%	3.10%	5.36%	3
California	Region 21R	3.83%	2.96%	4.96%	3

(continued)

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health (NSDUH), 2012 to 2014.

Table S1 - continued. Serious mental illness among people aged 18 or older, by region, state and substate region: percentages, annual averages based on combined 2012 to 2014 NSDUH

State	Substate region	Small area estimate	95% CI (lower)	95% CI (upper)	Substate area group
Colorado	**Colorado**	**3.90%**	**3.14%**	**4.83%**	
Colorado	Region 1	3.84%	2.87%	5.11%	3
Colorado	Regions 2 and 7	3.81%	2.91%	4.96%	3
Colorado	Region 3	4.07%	3.00%	5.49%	3
Colorado	Region 4	4.52%	3.20%	6.35%	4
Colorado	Regions 5 and 6	3.90%	2.84%	5.32%	3
Connecticut	**Connecticut**	**3.43%**	**2.81%**	**4.18%**	
Connecticut	Eastern	4.02%	2.98%	5.39%	3
Connecticut	North Central	3.42%	2.56%	4.55%	2
Connecticut	Northwestern	3.46%	2.59%	4.61%	2
Connecticut	South Central	3.40%	2.58%	4.48%	2
Connecticut	Southwest	3.07%	2.27%	4.13%	1
Delaware	**Delaware**	**3.99%**	**3.25%**	**4.90%**	
Delaware	Kent	3.87%	2.91%	5.14%	3
Delaware	New Castle (excluding Wilmington City)	3.99%	3.09%	5.14%	3
Delaware	Sussex	4.07%	3.01%	5.47%	3
Delaware	Wilmington City	4.09%	3.01%	5.54%	4
District of Columbia	**District of Columbia**	**3.78%**	**3.16%**	**4.52%**	
District of Columbia	Ward 1	3.95%	3.05%	5.11%	3
District of Columbia	Ward 2	4.15%	3.23%	5.33%	4
District of Columbia	Ward 3	3.93%	3.03%	5.08%	3
District of Columbia	Ward 4	3.29%	2.44%	4.43%	1
District of Columbia	Ward 5	3.33%	2.48%	4.47%	1
District of Columbia	Ward 6	4.18%	3.21%	5.44%	4
District of Columbia	Ward 7	3.40%	2.43%	4.74%	2
District of Columbia	Ward 8	3.85%	2.83%	5.22%	3
Florida	**Florida**	**3.86%**	**3.37%**	**4.40%**	
Florida	Broward (Circuit 17)	3.43%	2.60%	4.52%	2
Florida	Circuit 9	3.99%	3.11%	5.10%	3
Florida	Circuit 18	3.91%	2.98%	5.11%	3
Florida	Circuit 6	4.10%	3.10%	5.41%	4
Florida	Circuit 10	4.18%	3.15%	5.53%	4
Florida	Circuit 12	3.96%	2.94%	5.30%	3
Florida	Circuit 13 (Hillsborough)	3.94%	3.01%	5.15%	3
Florida	Circuit 20	3.70%	2.77%	4.93%	3
Florida	Circuit 4	3.75%	2.92%	4.81%	3
Florida	Circuit 5	4.21%	3.13%	5.65%	4
Florida	Circuit 7	4.08%	3.04%	5.44%	3
Florida	Circuit 8 plus Columbia, Dixie, Hamilton, Lafayette, and Suwannee	4.32%	3.30%	5.63%	4
Florida	Circuit 1	4.73%	3.51%	6.35%	5
Florida	Circuit 2 plus Madison and Taylor	3.83%	2.96%	4.93%	3
Florida	Circuit 14	4.39%	3.26%	5.89%	4
Florida	South (Circuits 11 and 16)	3.39%	2.58%	4.44%	2
Florida	Circuit 15 (Palm Beach)	3.45%	2.57%	4.61%	2
Florida	Circuit 19	4.28%	3.17%	5.77%	4
Georgia	**Georgia**	**3.99%**	**3.27%**	**4.86%**	
Georgia	Region 1	3.98%	2.98%	5.31%	3
Georgia	Region 2	4.67%	3.48%	6.24%	5
Georgia	Region 3	3.47%	2.63%	4.56%	2
Georgia	Region 4	4.40%	3.27%	5.88%	4
Georgia	Region 5	4.49%	3.34%	6.01%	4
Georgia	Region 6	3.91%	2.86%	5.31%	3
Hawaii	**Hawaii**	**3.43%**	**2.74%**	**4.29%**	
Hawaii	Hawaii Island	4.13%	3.00%	5.67%	4
Hawaii	Honolulu	3.20%	2.47%	4.15%	1
Hawaii	Kauai	3.43%	2.50%	4.70%	2
Hawaii	Maui	4.01%	2.88%	5.56%	3

(continued)

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health (NSDUH), 2012 to 2014.

Table S1 - continued. Serious mental illness among people aged 18 or older, by region, state and substate region: percentages, annual averages based on combined 2012 to 2014 NSDUH

State	Substate region	Small area estimate	95% CI (lower)	95% CI (upper)	Substate area group
Idaho	**Idaho**	**4.79%**	**4.01%**	**5.72%**	
Idaho	Region 1	4.70%	3.52%	6.26%	5
Idaho	Region 2	5.34%	3.99%	7.12%	6
Idaho	Region 3	5.16%	3.83%	6.92%	6
Idaho	Region 4	4.26%	3.27%	5.52%	4
Idaho	Region 5	5.36%	3.95%	7.23%	6
Idaho	Region 6	5.06%	3.78%	6.75%	5
Idaho	Region 7	4.69%	3.58%	6.12%	5
Illinois	**Illinois**	**3.42%**	**2.95%**	**3.97%**	
Illinois	Region I (Cook)	3.20%	2.58%	3.98%	1
Illinois	Region II	3.28%	2.65%	4.04%	1
Illinois	Region III	3.74%	2.90%	4.81%	3
Illinois	Region IV	3.99%	3.06%	5.18%	3
Illinois	Region V	4.07%	3.16%	5.24%	3
Indiana	**Indiana**	**4.71%**	**3.91%**	**5.67%**	
Indiana	Central	4.40%	3.36%	5.74%	4
Indiana	East	5.05%	3.71%	6.84%	5
Indiana	North Central	4.75%	3.56%	6.30%	5
Indiana	Northeast	4.65%	3.45%	6.25%	5
Indiana	Northwest	4.51%	3.32%	6.10%	4
Indiana	Southeast	5.13%	3.74%	6.98%	6
Indiana	Southwest	4.96%	3.68%	6.67%	5
Indiana	West	4.80%	3.68%	6.25%	5
Iowa	**Iowa**	**4.45%**	**3.71%**	**5.34%**	
Iowa	Central	4.07%	3.04%	5.41%	3
Iowa	North Central	4.29%	3.19%	5.73%	4
Iowa	Northeast	4.34%	3.33%	5.65%	4
Iowa	Northwest	4.28%	3.17%	5.77%	4
Iowa	Southeast	5.23%	3.92%	6.95%	6
Iowa	Southwest	4.18%	3.10%	5.63%	4
Kansas	**Kansas**	**4.12%**	**3.39%**	**5.00%**	
Kansas	Kansas City Metro	3.74%	2.85%	4.88%	3
Kansas	Northeast	4.19%	3.16%	5.53%	4
Kansas	South Central	4.27%	3.15%	5.77%	4
Kansas	Southeast	4.84%	3.49%	6.68%	5
Kansas	West	4.51%	3.30%	6.15%	4
Kansas	Wichita (Sedgwick)	4.15%	3.10%	5.55%	4
Kentucky	**Kentucky**	**4.96%**	**4.09%**	**6.00%**	
Kentucky	Adanta, Cumberland River, and Lifeskills	5.49%	4.12%	7.28%	6
Kentucky	Bluegrass, Comprehend, and North Key	4.79%	3.62%	6.32%	5
Kentucky	Communicare and River Valley	4.79%	3.52%	6.49%	5
Kentucky	Four Rivers and Pennyroyal	5.13%	3.76%	6.94%	6
Kentucky	Kentucky River, Mountain, and Pathways	5.72%	4.17%	7.79%	7
Kentucky	Seven Counties	4.40%	3.28%	5.89%	4
Louisiana	**Louisiana**	**4.27%**	**3.53%**	**5.15%**	
Louisiana	Region 1	4.08%	2.98%	5.55%	3
Louisiana	Region 10 (Jefferson)	4.04%	2.99%	5.45%	3
Louisiana	Regions 2 and 9	4.29%	3.26%	5.64%	4
Louisiana	Region 3	4.08%	3.05%	5.44%	3
Louisiana	Regions 4, 5, and 6	4.60%	3.51%	6.00%	5
Louisiana	Regions 7 and 8	4.09%	3.08%	5.42%	4
Maine	**Maine**	**4.96%**	**4.08%**	**6.03%**	
Maine	Aroostook	5.66%	4.04%	7.86%	7
Maine	Downeast	5.32%	3.76%	7.47%	6
Maine	Central	5.43%	4.02%	7.29%	6
Maine	Cumberland	4.46%	3.37%	5.87%	4
Maine	Midcoast	4.73%	3.42%	6.51%	5
Maine	Penquis	5.67%	4.21%	7.60%	7
Maine	Western	5.03%	3.69%	6.84%	5
Maine	York	4.37%	3.23%	5.90%	4

(continued)

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health (NSDUH), 2012 to 2014.

Table S1 - continued. Serious mental illness among people aged 18 or older, by region, state and substate region: percentages, annual averages based on combined 2012 to 2014 NSDUH

State	Substate region	Small area estimate	95% CI (lower)	95% CI (upper)	Substate area group
Maryland	**Maryland**	**3.31%**	**2.70%**	**4.06%**	
Maryland	Anne Arundel	3.49%	2.55%	4.74%	2
Maryland	Baltimore City	3.62%	2.69%	4.84%	2
Maryland	Baltimore County	3.38%	2.50%	4.57%	2
Maryland	Montgomery	3.10%	2.27%	4.21%	1
Maryland	North Central	3.17%	2.34%	4.29%	1
Maryland	Northeast	3.49%	2.56%	4.73%	2
Maryland	Prince George's	2.82%	2.06%	3.84%	1
Maryland	South	3.35%	2.49%	4.50%	1
Maryland	West	3.81%	2.83%	5.11%	3
Massachusetts	**Massachusetts**	**4.03%**	**3.33%**	**4.86%**	
Massachusetts	Boston	4.26%	3.30%	5.49%	4
Massachusetts	Central	4.07%	3.02%	5.46%	3
Massachusetts	Metrowest	3.69%	2.78%	4.89%	2
Massachusetts	Northeast	3.93%	2.96%	5.20%	3
Massachusetts	Southeast	4.03%	3.03%	5.34%	3
Massachusetts	Western	4.48%	3.37%	5.95%	4
Michigan	**Michigan**	**4.53%**	**3.98%**	**5.14%**	
Michigan	Region 1	5.79%	4.39%	7.60%	7
Michigan	Region 2	5.24%	3.93%	6.96%	6
Michigan	Region 3	4.62%	3.67%	5.80%	5
Michigan	Region 4	4.66%	3.62%	5.99%	5
Michigan	Region 5	4.67%	3.77%	5.76%	5
Michigan	Region 6	4.14%	3.25%	5.25%	4
Michigan	Region 7	4.01%	3.17%	5.05%	3
Michigan	Region 8	4.32%	3.35%	5.55%	4
Michigan	Region 9	4.44%	3.43%	5.73%	4
Michigan	Region 10	4.93%	3.84%	6.33%	5
Minnesota	**Minnesota**	**4.32%**	**3.57%**	**5.23%**	
Minnesota	Regions 1 and 2	4.83%	3.61%	6.43%	5
Minnesota	Regions 3 and 4	4.57%	3.42%	6.09%	4
Minnesota	Regions 5 and 6	4.57%	3.41%	6.11%	4
Minnesota	Region 7A (Hennepin)	4.14%	3.12%	5.48%	4
Minnesota	Region 7B (Ramsey)	4.41%	3.27%	5.93%	4
Minnesota	Region 7C	3.83%	2.90%	5.04%	3
Mississippi	**Mississippi**	**4.72%**	**3.86%**	**5.75%**	
Mississippi	Region 1	5.26%	3.92%	7.02%	6
Mississippi	Region 2	4.54%	3.31%	6.18%	4
Mississippi	Region 3	5.15%	3.79%	6.97%	6
Mississippi	Region 4	3.84%	2.85%	5.15%	3
Mississippi	Region 5	4.90%	3.49%	6.83%	5
Mississippi	Region 6	4.74%	3.51%	6.36%	5
Mississippi	Region 7	4.64%	3.44%	6.22%	5
Missouri	**Missouri**	**4.87%**	**4.04%**	**5.86%**	
Missouri	Central	5.03%	3.77%	6.67%	5
Missouri	Eastern (St. Louis City and County)	4.41%	3.31%	5.85%	4
Missouri	Eastern (excluding St. Louis)	4.28%	3.21%	5.69%	4
Missouri	Northwest (Jackson)	4.47%	3.30%	6.03%	4
Missouri	Northwest (excluding Jackson)	4.53%	3.38%	6.04%	4
Missouri	Southeast	6.13%	4.51%	8.29%	7
Missouri	Southwest	5.46%	4.08%	7.27%	6
Montana	**Montana**	**4.39%**	**3.60%**	**5.34%**	
Montana	Region 1	4.29%	3.11%	5.90%	4
Montana	Region 2	4.29%	3.23%	5.69%	4
Montana	Region 3	4.50%	3.40%	5.93%	4
Montana	Region 4	4.10%	3.12%	5.38%	4
Montana	Region 5	4.63%	3.50%	6.10%	5

(continued)

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health (NSDUH), 2012 to 2014.

Table S1 - continued. Serious mental illness among people aged 18 or older, by region, state and substate region: percentages, annual averages based on combined 2012 to 2014 NSDUH

State	Substate region	Small area estimate	95% CI (lower)	95% CI (upper)	Substate area group
Nebraska	**Nebraska**	**4.44%**	**3.66%**	**5.38%**	
Nebraska	Region 1	4.75%	3.46%	6.50%	5
Nebraska	Region 2	4.58%	3.31%	6.31%	4
Nebraska	Region 3	4.48%	3.31%	6.03%	4
Nebraska	Region 4	4.54%	3.33%	6.16%	4
Nebraska	Region 5	4.54%	3.46%	5.93%	4
Nebraska	Region 6	4.30%	3.34%	5.52%	4
Nevada	**Nevada**	**4.33%**	**3.52%**	**5.32%**	
Nevada	Clark - Region 1	4.26%	3.35%	5.42%	4
Nevada	Capital District	4.54%	3.28%	6.27%	4
Nevada	Rural/Frontier	4.41%	3.23%	5.99%	4
Nevada	Washoe - Region 2	4.52%	3.45%	5.90%	4
New Hampshire	**New Hampshire**	**4.65%**	**3.83%**	**5.64%**	
New Hampshire	Central	4.76%	3.76%	6.00%	5
New Hampshire	Northern	5.08%	3.72%	6.91%	5
New Hampshire	Southern	4.51%	3.60%	5.63%	4
New Jersey	**New Jersey**	**3.46%**	**2.82%**	**4.25%**	
New Jersey	Central	3.59%	2.71%	4.75%	2
New Jersey	Metropolitan	3.26%	2.42%	4.37%	1
New Jersey	Northern	3.45%	2.60%	4.57%	2
New Jersey	Southern	3.57%	2.69%	4.73%	2
New Mexico	**New Mexico**	**4.23%**	**3.45%**	**5.17%**	
New Mexico	Region 1	4.06%	3.04%	5.40%	3
New Mexico	Region 2	4.15%	3.02%	5.68%	4
New Mexico	Region 3 (Bernalillo)	4.17%	3.16%	5.49%	4
New Mexico	Region 4	4.43%	3.30%	5.91%	4
New Mexico	Region 5	4.43%	3.27%	5.96%	4
New York	**New York**	**3.74%**	**3.24%**	**4.31%**	
New York	Region A	3.75%	3.16%	4.45%	3
New York	Region B	3.24%	2.67%	3.91%	1
New York	Region C	4.00%	3.40%	4.72%	3
New York	Region D	4.53%	3.71%	5.51%	4
North Carolina	**North Carolina**	**4.85%**	**4.00%**	**5.87%**	
North Carolina	Alliance Behavioral Healthcare 1	4.60%	3.47%	6.09%	5
North Carolina	Alliance Behavioral Healthcare 2	3.88%	2.93%	5.13%	3
North Carolina	Cardinal Innovations Healthcare Solutions 1	5.06%	3.61%	7.03%	5
North Carolina	Cardinal Innovations Healthcare Solutions 2	4.58%	3.33%	6.28%	4
North Carolina	Cardinal Innovations Healthcare Solutions 3	4.17%	3.08%	5.63%	4
North Carolina	CenterPoint Human Services	4.64%	3.36%	6.39%	5
North Carolina	Eastpointe	5.48%	3.95%	7.56%	6
North Carolina	Partners Behavioral Health Management	5.05%	3.72%	6.83%	5
North Carolina	Sandhills Center 1	5.27%	3.78%	7.31%	6
North Carolina	Sandhills Center 2	4.79%	3.48%	6.55%	5
North Carolina	Smoky Mountain Center 1	5.75%	4.15%	7.93%	7
North Carolina	Smoky Mountain Center 2	5.32%	3.81%	7.39%	6
North Carolina	Trillium Healthcare Resources 1	4.90%	3.58%	6.67%	5
North Carolina	Trillium Healthcare Resources 2	5.11%	3.72%	6.99%	5
North Dakota	**North Dakota**	**4.04%**	**3.34%**	**4.88%**	
North Dakota	Badlands and West Central	3.76%	2.85%	4.95%	3
North Dakota	Lake Region	4.17%	3.02%	5.73%	4
North Dakota	North Central	4.01%	3.03%	5.28%	3
North Dakota	Northeast	4.28%	3.28%	5.56%	4
North Dakota	Northwest	3.62%	2.71%	4.84%	2
North Dakota	South Central	4.23%	3.07%	5.81%	4
North Dakota	Southeast	4.20%	3.27%	5.39%	4

(continued)

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health (NSDUH), 2012 to 2014.

Table S1 - continued. Serious mental illness among people aged 18 or older, by region, state and substate region: percentages, annual averages based on combined 2012 to 2014 NSDUH

State	Substate region	Small area estimate	95% CI (lower)	95% CI (upper)	Substate area group
Ohio	**Ohio**	**4.74%**	**4.18%**	**5.36%**	
Ohio	Boards 2, 46, 55, and 68	5.11%	3.87%	6.70%	5
Ohio	Boards 3, 52, and 85	4.90%	3.66%	6.53%	5
Ohio	Boards 4 and 78	5.32%	3.99%	7.07%	6
Ohio	Boards 5 and 60	5.25%	3.99%	6.86%	6
Ohio	Boards 7, 15, 41, 79, and 84	5.49%	4.15%	7.22%	6
Ohio	Boards 8, 13, and 83	4.88%	3.70%	6.40%	5
Ohio	Board 9 (Butler)	4.61%	3.53%	6.00%	5
Ohio	Board 12	4.52%	3.47%	5.88%	4
Ohio	Boards 18 and 47	4.64%	3.66%	5.87%	5
Ohio	Boards 20, 32, 54, and 69	4.63%	3.52%	6.07%	5
Ohio	Boards 21, 39, 51, 70, and 80	4.49%	3.45%	5.82%	4
Ohio	Boards 22, 74, and 87	4.62%	3.57%	5.96%	5
Ohio	Boards 23 and 45	4.89%	3.71%	6.43%	5
Ohio	Board 25 (Franklin)	4.42%	3.49%	5.58%	4
Ohio	Boards 27, 71, and 73	5.65%	4.31%	7.37%	7
Ohio	Boards 28, 43, and 67	4.48%	3.46%	5.79%	4
Ohio	Board 31 (Hamilton)	4.12%	3.16%	5.35%	4
Ohio	Board 48 (Lucas)	4.54%	3.47%	5.92%	4
Ohio	Boards 50 and 76	4.74%	3.60%	6.23%	5
Ohio	Board 57 (Montgomery)	4.99%	3.82%	6.50%	5
Ohio	Board 77 (Summit)	4.58%	3.51%	5.96%	4
Oklahoma	**Oklahoma**	**4.59%**	**3.81%**	**5.51%**	
Oklahoma	Central	4.44%	3.36%	5.86%	4
Oklahoma	East Central	4.65%	3.45%	6.25%	5
Oklahoma	Northeast	4.48%	3.36%	5.95%	4
Oklahoma	Northwest and Southwest	4.42%	3.29%	5.92%	4
Oklahoma	Oklahoma County	4.44%	3.39%	5.79%	4
Oklahoma	Southeast	5.31%	3.94%	7.14%	6
Oklahoma	Tulsa County	4.45%	3.31%	5.95%	4
Oregon	**Oregon**	**4.83%**	**4.02%**	**5.81%**	
Oregon	Region 1 (Multnomah)	5.03%	3.86%	6.52%	5
Oregon	Region 2	4.10%	3.13%	5.36%	4
Oregon	Region 3	5.12%	3.93%	6.65%	6
Oregon	Region 4	5.03%	3.69%	6.80%	5
Oregon	Region 5 (Central)	4.68%	3.41%	6.41%	5
Oregon	Region 6 (Eastern)	5.21%	3.77%	7.15%	6
Pennsylvania	**Pennsylvania**	**4.00%**	**3.49%**	**4.57%**	
Pennsylvania	Region 1 (Allegheny)	3.98%	3.10%	5.10%	3
Pennsylvania	Regions 3, 8, 9, and 51	4.12%	3.17%	5.33%	4
Pennsylvania	Regions 4, 11, 37, and 49	3.94%	3.04%	5.09%	3
Pennsylvania	Regions 5, 18, 23, 24, and 46	4.36%	3.36%	5.64%	4
Pennsylvania	Regions 6, 12, 16, 31, 35, 45, and 47	4.41%	3.42%	5.66%	4
Pennsylvania	Regions 7, 13, 20, and 33	3.40%	2.68%	4.29%	2
Pennsylvania	Regions 10, 15, 27, 32, 43, and 44	4.67%	3.53%	6.16%	5
Pennsylvania	Regions 17 and 21	4.38%	3.35%	5.69%	4
Pennsylvania	Regions 19, 26, 28, and 42	3.92%	3.08%	4.98%	3
Pennsylvania	Regions 22, 38, 40, 41, and 48	3.87%	2.92%	5.11%	3
Pennsylvania	Regions 29 and 34	3.96%	3.00%	5.21%	3
Pennsylvania	Regions 30 and 50	4.17%	3.19%	5.45%	4
Pennsylvania	Region 36 (Philadelphia)	4.36%	3.47%	5.47%	4
Rhode Island	**Rhode Island**	**4.98%**	**4.04%**	**6.12%**	
Rhode Island	Bristol and Newport	4.28%	3.13%	5.82%	4
Rhode Island	Kent	4.73%	3.43%	6.49%	5
Rhode Island	Providence	5.36%	4.16%	6.88%	6
Rhode Island	Washington	4.17%	3.06%	5.65%	4
South Carolina	**South Carolina**	**4.35%**	**3.58%**	**5.27%**	
South Carolina	Region 1	4.84%	3.66%	6.37%	5
South Carolina	Region 2	4.22%	3.21%	5.53%	4
South Carolina	Region 3	4.41%	3.25%	5.96%	4
South Carolina	Region 4	3.86%	2.94%	5.05%	3

(continued)

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health (NSDUH), 2012 to 2014.

Table S1 - continued. Serious mental illness among people aged 18 or older, by region, state and substate region: percentages, annual averages based on combined 2012 to 2014 NSDUH

State	Substate region	Small area estimate	95% CI (lower)	95% CI (upper)	Substate area group
South Dakota	**South Dakota**	**3.70%**	**2.96%**	**4.63%**	
South Dakota	Region 1	3.63%	2.66%	4.92%	2
South Dakota	Region 2	3.76%	2.69%	5.24%	3
South Dakota	Region 3	3.84%	2.84%	5.19%	3
South Dakota	Region 4	3.69%	2.69%	5.04%	2
South Dakota	Region 5	3.64%	2.73%	4.82%	2
Tennessee	**Tennessee**	**4.52%**	**3.74%**	**5.46%**	
Tennessee	Region 1	5.02%	3.69%	6.79%	5
Tennessee	Region 2	4.62%	3.45%	6.18%	5
Tennessee	Region 3	5.22%	3.88%	7.00%	6
Tennessee	Region 4 (Davidson)	4.35%	3.26%	5.79%	4
Tennessee	Region 5	4.29%	3.26%	5.63%	4
Tennessee	Region 6	4.61%	3.34%	6.33%	5
Tennessee	Region 7 (Shelby)	3.79%	2.81%	5.08%	3
Texas	**Texas**	**3.84%**	**3.36%**	**4.40%**	
Texas	Region 1	4.70%	3.56%	6.19%	5
Texas	Region 2	4.52%	3.40%	5.98%	4
Texas	Region 3	3.45%	2.84%	4.18%	2
Texas	Region 4	4.58%	3.49%	6.00%	4
Texas	Region 5	4.41%	3.33%	5.83%	4
Texas	Region 6	3.49%	2.81%	4.32%	2
Texas	Region 7	4.03%	3.29%	4.92%	3
Texas	Region 8	4.14%	3.19%	5.37%	4
Texas	Region 9	4.04%	3.08%	5.29%	3
Texas	Region 10	4.27%	3.20%	5.67%	4
Texas	Region 11	4.20%	3.32%	5.30%	4
Utah	**Utah**	**5.17%**	**4.33%**	**6.15%**	
Utah	Bear River, Northeastern, Summit, Tooele, and Wasatch	5.23%	4.02%	6.78%	6
Utah	Central, Four Corners, San Juan, and Southwest	5.41%	4.10%	7.10%	6
Utah	Davis County	5.02%	3.81%	6.59%	5
Utah	Salt Lake County	4.97%	3.95%	6.24%	5
Utah	Utah County	5.63%	4.36%	7.25%	7
Utah	Weber, Morgan	4.82%	3.62%	6.39%	5
Vermont	**Vermont**	**5.28%**	**4.30%**	**6.47%**	
Vermont	Champlain Valley	4.58%	3.50%	5.97%	4
Vermont	Rural Northeast	6.13%	4.45%	8.38%	7
Vermont	Rural Southeast	5.34%	3.94%	7.19%	6
Vermont	Rural Southwest	5.70%	4.16%	7.77%	7
Virginia	**Virginia**	**3.98%**	**3.30%**	**4.80%**	
Virginia	Region 1	4.02%	3.02%	5.33%	3
Virginia	Region 2	3.25%	2.46%	4.28%	1
Virginia	Region 3	5.13%	3.84%	6.82%	6
Virginia	Region 4	3.99%	2.94%	5.40%	3
Virginia	Region 5	3.99%	3.05%	5.20%	3
Washington	**Washington**	**4.72%**	**3.92%**	**5.67%**	
Washington	Region 1	5.20%	4.10%	6.57%	6
Washington	Region 2	4.47%	3.58%	5.57%	4
Washington	Region 3	4.76%	3.85%	5.87%	5
West Virginia	**West Virginia**	**5.53%**	**4.59%**	**6.64%**	
West Virginia	Region I	5.53%	4.00%	7.58%	7
West Virginia	Region II	5.37%	3.93%	7.28%	6
West Virginia	Region III	5.65%	4.10%	7.74%	7
West Virginia	Region IV	5.07%	3.83%	6.68%	5
West Virginia	Region V	5.51%	4.22%	7.16%	7
West Virginia	Region VI	6.18%	4.62%	8.22%	7

(continued)

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health (NSDUH), 2012 to 2014.

Table S1 - continued. Serious mental illness among people aged 18 or older, by region, state and substate region: percentages, annual averages based on combined 2012 to 2014 NSDUH

State	Substate region	Small area estimate	95% CI (lower)	95% CI (upper)	Substate area group
Wisconsin	**Wisconsin**	**4.15%**	**3.39%**	**5.07%**	
Wisconsin	Milwaukee	4.05%	3.05%	5.35%	3
Wisconsin	Northeastern	4.41%	3.30%	5.87%	4
Wisconsin	Northern	4.32%	3.14%	5.92%	4
Wisconsin	Southeastern	3.64%	2.71%	4.85%	2
Wisconsin	Southern	4.19%	3.12%	5.60%	4
Wisconsin	Western	4.48%	3.30%	6.07%	4
Wyoming	**Wyoming**	**4.30%**	**3.57%**	**5.17%**	
Wyoming	Judicial District 1 (Laramie)	4.33%	3.26%	5.71%	4
Wyoming	Judicial District 2	4.62%	3.58%	5.95%	5
Wyoming	Judicial District 3	4.11%	3.08%	5.46%	4
Wyoming	Judicial District 4	4.35%	3.16%	5.96%	4
Wyoming	Judicial District 5	4.31%	3.15%	5.87%	4
Wyoming	Judicial District 6	4.04%	3.04%	5.35%	3
Wyoming	Judicial District 7 (Natrona)	4.60%	3.42%	6.17%	5
Wyoming	Judicial District 8	4.47%	3.26%	6.09%	4
Wyoming	Judicial District 9	3.97%	2.96%	5.31%	3

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health (NSDUH), 2012 to 2014.

SUMMARY

Background: Mental illness is a major public health concern in the United States. Information on the prevalence of mental illness is needed to help inform effective treatment and prevention programs. **Method:** Combined 2012–2014 National Survey on Drug Use and Health national, regional, state-level, and substate-level estimates of serious mental illness (SMI) among adults aged 18 or older were analyzed. **Results:** Nationally, 9.3 million adults aged 18 or older experienced SMI in the past year, corresponding to 4.13 percent of the adult population. Across the census regions, estimates of past year SMI were 4.32 percent in the Midwest, 4.16 percent in the South, 4.09 percent in the West, and 3.86 percent in the Northeast. In the Midwest, estimates of past year SMI ranged from 4.87 percent in Missouri to 3.42 percent in Illinois. In the South, estimates of past year SMI ranged from 5.53 percent in West Virginia to 3.31 percent in Maryland. In the West, estimates of past year SMI ranged from 5.17 percent in Utah to 3.43 percent in Hawaii. In the Northeast, estimates of past year SMI ranged from 5.28 percent in Vermont to 3.43 percent in Connecticut. Only 1 state, North Carolina, experienced a statistically significant increase from 2010–2012 to 2012–2014 in the rate of past year SMI for adults, while the remaining 49 states and the District of Columbia experienced no change in the percentage of adults with past year SMI. **Conclusion:** Highlighting the percentage of people with SMI at state and substate levels can help policymakers inform their assessments of mental health needs in their communities

Keywords: Serious mental illness, SMI, National Survey on Drug Use and Health, NSDUH, state, substate

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KEYWORDS

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U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES
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Center for Behavioral Health Statistics and Quality
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